

Conditions under Which Flame-Resistant Clothing Must be Worn

- 1) All Bureau of Land Management (BLM) employees must wear Flame-Resistant Clothing (FRC) under the conditions /operations and as stated in the 2010 OSHA letter of interpretation:

http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=27296

- Immediately upon arrival on all active drilling locations;
 - Immediately after drilling the surface casing shoe until rig down operations begin;
 - When independently gauging or witnessing gauging operations on any storage tank or pit;
 - When witnessing the transfer of liquids between tanks, trucks, pits, or pipelines;
 - When witnessing gas meter calibrations, orifice plate inspections, primary element inspections, or collection and analysis of gas samples;
 - When witnessing meter provings;
 - Immediately upon arrival of all active locations where well servicing/workover, completion or plugging operations are occurring;
 - Immediately upon arrival on any location where venting or flaring operation are occurring;
 - Immediately upon arrival any location to inspect, witness, or investigate any oil spill; and
 - During any other hazardous operations identified as requiring its use and noted on a Risk Assessment.
- 2) Clothing comes in a variety of options (shirts, pants, coveralls, jackets). Garments selected must cover the upper and lower body, and the outer most layer of clothing must be flame resistant. Nylon jacket or parkas will quickly ignite and melt, creating an additional hazard as the outer garment actually becomes the source of ignition, potentially exposing workers to severe injuries. Even though the FRC garment may not ignite, having a flammable fuel source that close to the skin can still burn the wearer through heat transfer. To provide the best level of protection, wear undergarments of melt-resistant fabric such as cotton, wool, or aramid fibers. This also reduces heat-transfer. Ensure that use of any other personal protection equipment (PPE) does not interfere with the performance of FRC.

Selection of Flame-Resistant Clothing for BLM Oil and Gas Operations

FRC must have a label to indicate that it meets the requirements of National Fire Protection Association (NFPA) 2112 (2007 edition). The clothing must also have a label with the name of the certifying organization. You may wear clothing of either woven flame-resistant fibers (aramid fibers) or fabrics treated with a flame-resistant finish. Due to the expected number of washings for clothing used in oil and gas operations, we recommend you select clothing made of flame-resistant fibers for BLM operations. Repeated washings of treated fabric will reduce the life span of the protective qualities.

Selection of FRC must consider the following performance characteristics:

- 1) Thermal protective characteristics of the fabric – Clothing that meets the requirements of NFPA 2112 provides protection against flash fire for short periods of time, typically 3 seconds or less. It can serve to reduce the severity of burn injury, but it cannot completely prevent injury. Clothing that provides a higher thermal protective performance (TPP) can also increase garment weight and will reduce wearer comfort. Minimum requirements for the TPP “contact” rating (where fabric is in direct contact with skin) is 12.6 J/cm^2 . Minimum requirements for the TPP “spaced” rating (where there is an air gap between the fabric and skin) is 25 J/cm^2 . Garments with higher TPP ratings will provide better performance.
- 2) Physical characteristics of the fabric, such as stiffness or thickness – Fabric that is too stiff will interfere with movement. Fabric that is thick may be too hot in some climates, but may be preferable for cold weather use.
- 3) Garment construction – When selecting garments, pay attention to placement and construction of pockets that may snag or tear during operations. Closures (zippers, buttons, etc.) must be melt-resistant (not nylon hook and loop).
- 4) Avoidance of static charge build up – Do not rely solely on clothing in place of grounding or procedures to avoid static charge build-up. Employees should ground themselves before entering a high-risk area. At low humidity levels (less than 20 percent (<20%)), clothing may not provide static dissipation. You can treat clothing with a static-dissipative fabric treatment during laundering; however, this treatment will wash out and can possibly reduce flame resistance (consult manufacturer’s instructions for any laundry treatments, such as chlorine bleach, heavy-duty soap, heavy-duty synthetic detergent). Avoid over-drying FRC in the dryer to minimize static build-up. Use clothing made with inherently static-dissipative fibers in low-humidity environments. NOMEX fibers may contribute to static build-up.
- 5) Design of the garment – Loose-fitting clothing will lessen heat transfer to skin in the event of a flash fire. Attach one BLM emblem patch to the clothing. Ensure the patch is minimal in size ($1\frac{1}{2}$ ”) and, if possible, made of flame-resistant fibers. Use cotton or wool thread for construction or attachment of emblem patches. Do not embroider the emblems onto the garment. Attach emblem patches not constructed of flame-resistant fibers to a pocket to reduce the amount of contact with fabric close to the skin.
- 6) Fabric and garment comfort – Clothing should offer minimal interference for performance of tasks in the flash-fire hazard zone.
- 7) Cleaning and maintenance of garments – Maintain clothing in a clean condition to reduce build-up of contaminants that reduce flame resistance. Wash clothing prior to initial use to remove any treatments of the manufacturing process (i.e. fabric stiffeners). Avoid dry cleaning. Do not clean any contaminated FRC (i.e., hazardous materials, flammable

substances, biological agents) in public laundry facilities. Track the number of launderings of garments made with a flame-resistant finish to ensure that you remove the FRC from service at the end of their lifespan, as determined by the manufacturer's guidance. Track each garment that is made with a flame-resistant finish.

You must have training to use FRC. Training must include the following topics:

- 1) When to wear the FRC; which operations will require its use – see OSHA letter of interpretation at http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=27296

Limitations of performance of the garments – Level of protection per the TPP. Garments will burn. Remove garments after an incident to reduce thermal exposure to skin. Holes/tears and excessive saturation/soiling will reduce protection. Undergarments and closures must be melt-resistant.

Limitations, disposal – Repair damaged clothing or remove from service. Damages include:

- Holes, rips, tears, or seam openings >1"
 - Reduction of fabric thickness >25%
 - Discoloration over more than 10% of the fabric
 - Missing, corroded, or non-functional hardware (closures)
- 2) How to inspect the garments for damage – Inspect clothing for damage after each use and again after each cleaning. Repair damages, or remove the garment from service. Repair clothing in accordance with the manufacturer's guidance. Use threads and patches made of same FRC material as the garment for any repairs.
 - 3) How and when to clean the garments – Do not allow excessive soiling/saturation. Follow manufacturer's recommendations for laundering.
 - 4) Storage of the garments – Store FRC in a clean condition, indoors, in dry conditions, and out of sunlight. Do not store soiled FRC with personal belongings.
 - 5) Disposal – When to dispose of the garments. Track and document repairs, date of purchase, number of cleanings, etc. Remove from service and destroy clothing beyond repair or clothing at the end of its service life (as stated by the manufacturer)

Uniform Manual 1103

- .1 Uniform Types, Components, Ownership, and Other Requirements.
- .14 Non-Uniform Items.

C. Safety and Specialty Items.

How are safety and specialty items acquired?

“Safety and specialty items are not part of the BLM Uniform Program. Employees should seek

guidance from their supervisor and/or safety managers on acquiring and wearing protective clothing, such as safety shoes/boots, fire/flame retardant/resistant clothing, flight suits, chest boots/waders, hard hats, protective helmets, flotation jackets, special cold-weather gear, special river patrol and bike patrol clothing, and other health/safety-related special clothing needs. The requirement for these items must be consistent with conditions specified in 5 U.S.C. 7903 (Special Clothing for Hazardous Situations) and/or the Occupational Safety and Health Act of 1970. The uniform allowance must not be used for purchasing these items, although government funds may be used as long as the items are approved by the supervisor/safety manager. When purchased with BLM funds, safety and specialty items are government property.”